



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,506	05/16/2001	Koichi Kamon	44084-494	9434

7590 05/16/2005
MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

STREGE, JOHN B

ART UNIT	PAPER NUMBER
----------	--------------

2625

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/855,506 ✓

Applicant(s)

KAMON ET AL.

Examiner

John B. Strege

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/8/05.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 21-31 is/are pending in the application.
4a) Of the above claim(s) 29-31 is/are withdrawn from consideration.
5) ☒ Claim(s) 1,3-9 and 21 is/are allowed.
6) ☐ Claim(s) 2,22-24,26 and 27 is/are rejected.
7) ☐ Claim(s) 10,25 and 28 is/are objected to.
8) ☐ Claim(s) 29-31 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 16 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

Response to Amendment

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/8/05 has been entered.

Applicant's arguments filed 3/8/05 with respect to claim 2 have been fully considered but they are not persuasive. Specifically the Applicant discloses that the claim properly recites the desired limitation and that the Examiner is reading the claim in a vacuum, however Examiner respectfully disagrees. As stated in the previous Office Action the claim contains contradictory information since one of ordinary skill in the art reading the claim would read that the area sensor is controlled such that exposure is dependent on light propagation and at the same time independent of light propagation. Although the terms of a claim may appear to be definite, inconsistency with the specification disclosure or prior art teachings may make an otherwise definite claim take on an unreasonable degree of uncertainty *In re Cohn*, 169 USPQ 95(CCPA 1974). This problem could be corrected if the claim were amended in such a way to differentiate that amount of exposure is controlled such that the amount of exposure of the area sensor is dependent on the light propagation time in a time frame, and in a separate time frame the area sensor is controlled such that the amount of exposure of the area sensor is independent of the light propagation time.

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 29-31 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 29-31 are directed to an area sensor which is a distinct invention from the examined three dimensional measurement method.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 29-31 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 discloses contradictory information in that the exposure of the area sensor is dependent on the light propagation time, and the exposure of the sensor is independent of the light propagation time. This problem could be corrected if the claim were amended in such a way to differentiate that amount of exposure is controlled such that the amount of exposure of the area sensor is dependent on the light propagation

time in a time frame, and in a separate time frame the area sensor is controlled such that the amount of exposure of the area sensor is independent of the light propagation time.

Claim 22 appears to be missing a verb (or verbs) on lines 8-10 which renders the meaning of the claim unclear. Specifically it is unclear what is occurring with the following limitation, "and periodic ON/OFF states of the plurality of photoelectric conversion elements a plurality of times during one accumulating period synchronously with the periodical emitting of the projector"

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 23-24, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yahav et al. USPN 6,091,905 (hereinafter "Yahav") in view of Sato et al. USPN 4,678,323 (hereinafter "Sato").

Yahav discloses a three-dimensional camera, and a method for accurately determining the distance to various objects and portions of objects in a scene (col. 1 lines 4-8). A source of radiation 10 (figure 1) directs radiation at the scene (col. 3 lines 8-9). This radiation is visible or infrared radiation, such as laser radiation or stroboscopic

Art Unit: 2625

light (col. 3 lines 16-17). Yahav further states that one can use both continuous radiation and pulsed radiation (col. 6 lines 29-31). The system further includes a detector to receive the radiation reflected from the object in the scene (col. 3 lines 19-20). The detector may be any suitable detector with a suitable number of gray levels including, a photographic camera (i.e. a still camera), electronic camera, video camera, or a CCD camera (col. 3 lines 22-26). A CCD has a plurality of photoelectric conversion elements that accumulates charge. Yahav further discloses that the simultaneous control of the source modulator 16 and detector modulator 18 may be synchronous so that the operation of both radiation source 10 and detector 12 is affected in the same way at the same time, i.e., synchronously (col. 4 lines 14-26). Yahav further discloses that the radiation source and detector 12 may be open for different durations during each cycle and/or the unblocking of detector 12 may lag the unblocking of radiation source 10 during each cycle (col. 4 lines 14-33). The detector being blocked and unblocked within a cycle corresponds to changing the sensitivity of the detector. Finally the system further determines the distances to various objects and portions of objects in the scene being examined (col. 4 lines 36-39).

Yahav does not explicitly disclose that the area sensor includes two gates in said each photoelectric conversion element for controlling an electric charge photoelectrically converted by said each photoelectric conversion element, the ON/OFF states of said two gates are activated alternately.

Sato discloses a distance measuring device with synchronous light integrating means for removing the adverse effect of external disturbing light (col. 1 lines 1-10). A

Art Unit: 2625

light receiving photo-sensitive sensor 1 with multiple gates receives both external and projected signal light reflected by an object (col. 7 lines 34-57). The circuit applies pulses to the gates 3 and 4 in synchronism with the on-off flicker of the light source and the accumulated signals S1 and S2 are received (col. 8 lines 29-48). This method allows for compensating for changes due to ambient light (col. 3 lines 49-60).

Yahav discloses that it is necessary to compensate for differences in the reflectivity of different objects, but does not go into specific detail as to how to achieve this (col. 6 lines 5-49).

Yahav and Sato are analogous art because they are from the same field of endeavor of distance measuring devices that compensate for different lighting problems. At the time of the invention it would have been obvious to one of ordinary skill in the art to modify Yahav's invention with Sato's teaching of using an area sensor that includes two gates in the photoelectric conversion element for controlling the electric charge wherein the two gates are activated alternatively. The motivation for doing so is that Yahav discloses that it is possible to compensate for lighting problems and Sato discloses a specific method for doing so. Thus it would have been obvious to one of ordinary skill in the art to combine Yahav and Sato to achieve the invention of claim 23.

Regarding claim 24, it is inherent with the gates as specified by Sato (col. 8 lines 48) that one of the gates accumulates charge and the other gate discharges it since this is how capacitors function.

Claims 26-27 are similar to claims 23-24 except claims 26-27 are apparatus claims instead of method claims. Thus the same arguments used for claims 23-24 apply equally to claims 26-27.

Allowable Subject Matter

6. Claims 1,3-9, and 21 allowed.
7. Claims 10, 25 and 28 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 5,699,151 Distance measurement device.

USPN 6,812,964 Three dimensional image capturing device.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Strege whose telephone number is (571) 272-7457. The examiner can normally be reached on Monday-Friday between the hours of 8-5.

Art Unit: 2625

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JS



BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600